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The 1982 lamb wind-chill forecasting trial in S. England

Agricultural Memorandum No. 949

J R Starr

Introduction

Ag Mem 934 and Starr (1981) reported background studies leading to trials of lamb wind-chill forecasts in the 1980 and 81 seasons at Bradfield near Reading. These preliminary results were sufficiently encouraging to suggest that such forecasts have an operational potential for the lowland flock for which an extended stay in housing is feasible under hostile weather conditions.

Accordingly in 1982 the trial was extended to a further 5 farmers (3 in the Oxford area, two on the chalk of the Hampshire/Wiltshire downs - including one who had lost over 40 lambs on one severe night in 1981!) These farmers are listed in the Acknowledgements.

As in previous seasons the Meteorological Office at RAF Benson supplied week-day forecasts for the four farmers in the Oxfordshire, Berkshire area. Bristol Weather Centre were briefed to give week-day forecasts to the two other farmers and to all 6 at week-ends. The onus was on the farmer to make contact at a mutually convenient time.

Lessons from 1980 and 81

Following the observations by Mr Bishop, Rushall farm, that wet lambs remained so under conditions of continuing high humidity and low wind speed, forecasters were asked to brief farmers appropriately ie give a basic wind-chill index (or preferably the 6 four-hourly components) with a caveat that this might be increased by several points under humid conditions following rainfall.

The 1982 lambing season

Unfortunately (for the meteorologists!!) the period from late March to late April was generally mild with temperatures and sunshine well above normal, and rainfall well below normal in April (see table below).

Heathrow

	Mean temperature difference from av.	Rainfall % of av.	Sunshine % of av.
March	+ 0.6 °C	136	147
April	+ 0.3 °C	58	133

Only the first half of March imposed several high index days (Appendix I) and it was during this period that Mr Dartnall began lambing near Marlborough.

Mr Dartnall comments as follows:-

"..... there were two periods when the indices were over 85, the 9-12th March and the 14-17th. There appeared to be one freak reading on 21 March.

Several of the days in these two periods started dry and bright and during other lambings we would have turned some out. The high readings prevented us doing that and the weather duly turned bad in the afternoon. There is no doubt that if we had turned any out some would have been lost.

One of the points made at the meeting* was that during the rush of lambing some just had to be turned out. My answer is that having seen the result of a turnout in weather that subsequently turned very bad+ it is surprising how you can cope if you really have to.

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* this refers to the post trial wash-up attended by all involved in the trial

\+ Mr Dartnall refers to the 1981 occasion when he lost 43 lambs on the one night of 21 March. Mr Bishop following the forecast wind-chill, kept stock in and lost none.

Our results show an acceptable level of losses particularly considering that we had a very high number of triplets and that we have a severe fox problem.

The results are:

Ewes put to ram	-	2,200
Lambs turned out	-	4,048 (184%)
Lambs at innoculation	-	3,855 (175.2%)
Lambs lost	-	193 (4.8%)

Our reaction to the figures was based on the following :

	factor
Triplets (put out)	< 70
Twins	71-80
Singles	81-90

Sometimes when we were under real pressure strong twins went out in the low 80's."

Other farmers, although starting lambing in a benign period, also adjusted their management to take account of wind-chill. Mr Harbottle of Faccombe near Newbury, with fields at 150 m and 300 m, normally put stock out of a morning. He often delayed until the afternoon in the light of wind-chill forecasts and kept in triplets for several days eventually putting out in the more sheltered field at 150 m. Mr Hawes found two occasions of high chill index when he did not turn out. He remarked however that if a flock is held in too long E.Coli problems can result. Mr Brown (Beckley) said his mind was not altered by the forecasts. He felt that he could judge for himself when lambs should be put out.

Mr Soanes felt the forecasts potentially useful but he began lambing in late March during the benign period.

Mr Bishop who has been involved in the study from the beginning has in 1980, 81 and 82

followed the index forecasts implicitly (see Ag.Mem 934 and Appendix II). He has found the information "extremely useful".

Future Plans

It was agreed at the 'wash-up' meeting that generally this season had not been a rigorous test of the system and that it should be extended on a trial basis for a further season; perhaps involving other weather centres (Southampton?, London?) with a further few farmers being recruited from the appropriate catchments. (The increase in commitments of Benson is likely to mean a running down of public service work).

Mr Bibb, Bristol W.C, remarked that the trial presented no problems but if the system became operational the ability of Centres to respond would have to be monitored.

As to charging the concensus was that farmers would be unlikely to participate at more than £150 and that £100 was a more acceptable figure (the cost, incidentally, of about 3 fat lambs!)

A 'package deal' might be arranged for farmers who also took out a Consultative Service.

Acknowledgements

The helpful participation of the following farmers was organised by Mr G Hughes, Livestock Husbandry, Reading and Mr P Wilkinson, AAO, ADAS, Oxford:

Mr J Bishop

Rushall Farm, Bradfield, Berks

Approx 800 ewes, lambing late March, 25 losses out of 1,237 lambs due to all causes.

Messrs G J Brown and Sons

Sescut Farm, Woodeaton, Oxford

Approx 1200 ewes in-wintered from mid-December, lambing around third week in March.

Mr V Dartnall

Temple Farm

Rockley Nr Marlborough, Wilts

2,200 ewes put to the ram, 4048 lambs turned out, beginning early March. Fields at 160 to 260m elevation.

Messrs R & H Hawes

Lower Green Farm, Horton cum Studley, Oxford

Approx 400 ewes, lambing third week in March.

Mr D Harbottle

Faccombe Estates, Near Newbury.

1500 ewes lambing in late March. Fields at 300m and 150m.

Mr M Soanes

Royal Oak Farm, Stowe Wood, Beckley, Oxford

Approx 300 ewes lambing the third week in March.

The Senior Meteorological Officers at RAF Benson (Mr A Pettit) and Bristol Weather Centre (Mr M Bibb) and their staff enthusiastically prepared the wind-chill forecasts and supplied interpretation of the figures to the farmers.

Please send all comments and suggestions to the author.

Meteorological Office

MAFF, Coley Park

Reading

July 1982

References

Starr, J R (1981) Agricultural Memorandum 934

Wind-chill in lambs - background studies and trials in seasons 1980 and 81.

Starr, J R (1981) Weather and lamb mortality in a commercial lowland sheep flock.

Agricultural Meteorology 24, pp 237-252

Bristol WC 1982

March

Index

	Beckley	Faccombe	Horton cum Studley	Temple (900') Farm	Rushall
6			84		
7			79		
8					
9				90	
10				86	
11				94	
12				86	
13			80	81	
14			92	93	
15				97	
16				95	
17				86	
18				78	
19				72	
20			68	77	60
21			87	91	87
22				60	
23				61	
24				61	
25				61	
26				61	
27	62		62	61	62
28	70	68	70	68	70
29		64		65	
30		70		70	
31		63		63	
April					
1		77		77	
2		68		68	
3	72	80	72	80	72
4	63				
5				72	
6		68		96	
7		80			
8		73		73	
9	76	76	75	76	
10	71	71	71	74	71
11	63	63	63	63	63
12	63	63	63	63	63
13		65		65	
14		63		63	
15		68		68	
16		60		60	
17		64	64	no longer	64
18		63	63	required	63
19		62			
20		60			
21		60			

April	Beckley	Faccombe	Horton cum Studley	Temple (900') Farm	Rushall 1
22		60			
23		63			
24		64	64		64
25		61	61		61
26		61			
27		61			
28		66			
29		71			
30		72			

Lamb Wind Chill F/C

Appendix 1

RAF Benson 1982

	Studley		Beckley	
March	Index	Actual	Index	Actual
8	72			
9	84			
10	75	82		
11	83			
12	79			
13	80	74		
14	92	81		
15	77	95		
16	81			
17	68			
18	68	63		
19	87	76		
20	68	75		
21	87			
22	60			
23	60			
24	60			
25	60		60	61
26	60		60	61
27	62		62	62
28	70	62	70	70
29	68		68	77
30	73	69	73	73
31	63		63	64
April				
1	79		79	79
2	64		64	60
3	72	63	72	60
4	63		63	63
5	73		73	73
6	79	88	79	76
7	86		86	86
8	69		69	69
9			76	77
10	71		71	71
11			63	63
12			63	62
13	62		62	62
14	60		60	60
15	60			
17	64			

Appendix 1

BWC Form 15 (2/82)

BRISTOL WEATHER CENTRE Date 11.3.82

FORECAST 'WINDCHILL' STRESS FACTORS FOR NEWBORN LAMBS AT

TEMPLE FARM MARLBOROUGH. MR DARTNALL

MARCH APRIL MAY 1982

PERIOD LT	0800 to 1200	1200 to 1600	1600 to 2000	2000 to 2400	0001 to 0400	0400 to 0800	TOTAL
FORECAST TEMP °C	+5	+6	+8	+7	+7	+6	
FORECAST WIND SPEED KNOTS	18	22	24	20	20	20	
RAIN?	YES	YES	NO	YES	YES	YES.	
FORECAST STRESS FACTOR	17	17	12	16	16	16	94

PASSED TO: Mr Dartnall 0715

BWC Form 15 (2/82)

BRISTOL WEATHER CENTRE Date 12.3.82

FORECAST 'WINDCHILL' STRESS FACTORS FOR NEWBORN LAMBS AT

MARCH APRIL MAY 1982

PERIOD LT	0800 to 1200	1200 to 1600	1600 to 2000	2000 to 2400	0001 to 0400	0400 to 0800	TOTAL
FORECAST TEMP °C	5	6	6	5	4	3	
FORECAST WIND SPEED KNOTS	30	30	25	20	15	12	
RAIN?	YES	YES	YES	No	No	No	
FORECAST STRESS FACTOR	18	17	17	12	11	11	86

PASSED TO: Mr Dartnall. 0707

Appendix II

Proforma used at Rushall Farm

Date.

Today's Stress Factor

		Turned out today		Already T.O		Dead Sheep Tag No.	
		Ewes	lambs	Ewes	lambs	Ewes	lambs
Ewe lambs	Troopers						
	Clay Hill						
Singles	College Park						
Twins	Loxmoor						
	Pit						
Triplets	Oaktree						